

CLAIMS

What is claimed is:

1. A method for compensating for backlight conditions in a scene for use in a camera that includes a flash and a flash control signal for activating the flash when the flash control signal is asserted, the method comprising the steps of:
 - a) generating a meter matrix for a scene that includes a plurality of points, wherein each point includes brightness information and distance information; and
 - b) selectively asserting a flash control signal based on the meter matrix.

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2. The method of claim 1

wherein the step of generating a meter matrix for a scene that includes a plurality of points, wherein each point includes brightness information and distance information includes

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defining a subject group of points;
defining a background group of points;
generating at least one point in the subject group; and
generating at least one point in the background group.

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3. The method of claim 2 wherein the step of selectively asserting a flash control signal based on the meter matrix includes the steps of:

a) determining the distance between the camera and the point in the subject group;
b) determining the distance between the camera and the point in the background group; and
c) determining the difference between the distance between the camera and the point in the background group and the distance between the camera and the point in the subject group.

4. The method of claim 3 wherein the step of selectively asserting a flash control signal based on the meter matrix further includes the steps of:

determining the brightness of the point in the subject group;

5 determining the brightness of the point in the background group; and

determining the difference between the brightness of the point in the background group and the brightness of the point in the subject group.

5. The method of claim 4 wherein the step of selectively asserting a flash 10 control signal based on the meter matrix further includes the steps of:

determining whether the distance difference exceeds a predetermined distance threshold;

determining whether the brightness difference exceeds a predetermined brightness threshold; and

15 when the distance difference exceeds a predetermined distance threshold and when the brightness difference exceeds a predetermined brightness threshold, asserting the flash control signal.

6. The method of claim 2 wherein the background points form an 20 inverted "U" shape and the subject group of points form an "I" shape.

7. The method of claim 2 wherein the step of selectively asserting a flash control signal based on the meter matrix includes the steps of:

25 a) determining the distance between the camera and the point in the subject group;

b) determining whether the distance between the camera and the point in the subject group is less than a predetermined distance;

c) when the distance between the camera and the point in the subject group is less than a predetermined distance;

 determining a general brightness level of the scene;

 determining whether the general brightness level exceeds a predetermined brightness threshold; and

 when the general brightness level exceeds a predetermined brightness threshold, asserting the flash control signal.

8. The method of claim 7 wherein the step of determining the distance between the camera and the point in the subject group includes

 employing a spot focus sensor for measuring the distance between the camera and the point in the subject group.

9. The method of claim 7 wherein the step of determining a general brightness level of the scene includes

 employing a general light sensor for measuring the general brightness level of the scene.

10. The method of claim 1 wherein the camera is one of a digital camera, a film camera, an image sensor.

11. A camera for capturing a scene comprising:

 a) a flash for emitting light in response to an asserted flash control signal;

 b) a meter matrix generator for generating a meter matrix based on information received from the scene; wherein the meter matrix includes a plurality of points; wherein each point includes distance information and brightness information; and

c) a backlight compensation unit coupled to the meter matrix generator for receiving the meter matrix and for selectively asserting the flash control signal based on the matrix meter.

5 12. The camera of claim 11 wherein the backlight compensation unit further includes:

a scene separator for separating the plurality of points in a scene into a subject group and a background group;

10 a brightness evaluator for selectively asserting the flash control signal based on brightness information of a point in the subject group and a point in the background group; and

a distance evaluator for selectively asserting the flash control signal based on distance information of a point in the subject group and a point on the background group.

15 13. The camera of claim 12 wherein the distance evaluator determines the distance between the camera and the point in the subject group, determines the distance between the camera and the point in the background group, and determines the difference between the distance between the camera and the point in the background group and the distance between the camera and the point in the subject group.

20 25 14. The camera of claim 13 wherein the brightness evaluator determines the brightness of the point in the subject group, determines the brightness of the point in the background group, and determines the difference between the brightness of the point in the background group and the brightness of the point in the subject group;

wherein the backlight compensation unit determines whether the distance difference exceeds a predetermined distance threshold and determines whether the

brightness difference exceeds a predetermined brightness threshold, and when the distance difference exceeds a predetermined distance threshold and when the brightness difference exceeds a predetermined brightness threshold, asserting the flash control signal.

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15. The camera of claim 12 wherein the distance evaluator determines the distance between the camera and the point in the subject group, determines whether the distance between the camera and the point in the subject group is less than a predetermined distance, when the distance between the camera and the point in the subject group is less than a predetermined distance, employing the brightness evaluator to determine a general brightness level of the scene, determine whether the general brightness level exceeds a predetermined brightness threshold, and when the general brightness level exceeds a predetermined brightness threshold, asserting the flash control signal.

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16. The camera of claim 15 further comprising:
a spot focus sensor for measuring the distance between the camera and the point in the subject group; and
a general light sensor for measuring the general brightness level of the scene.

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17. The camera of claim 11 further comprising:
means for measuring distance information of the scene; and
means for measuring brightness information of the scene.

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18. The camera of claim 1 wherein the camera is one of a digital camera and a film camera.

19. A camera for capturing a scene comprising: /

- a) means for emitting light in response to an asserted flash control signal;
- b) means for generating a meter matrix based on information received from the scene; wherein the meter matrix includes a plurality of points; wherein each point includes distance information and brightness information; and
- 5 c) backlight compensation means coupled to the meter matrix generator for receiving the meter matrix and for selectively asserting the flash control signal based on the matrix meter.

20. The camera of claim 19 wherein the backlight compensation

10 means further includes:

- means for separating the plurality of points in a scene into a subject group and a background group;
- brightness evaluation means for selectively asserting the flash control signal based on brightness information of a point in the subject group and a point in the background group; and
- 15 distance evaluation means for selectively asserting the flash control signal based on distance information of a point in the subject group and a point on the background group.